

CLAIMS:

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1. A compact disc processing system comprising:  
a data recorder to record content to a compact disc;  
a transporter to transport the compact disc; and  
a re-transfer printer to print an image to an internal intermediate transfer sheet  
and transfer the image from the transfer sheet to the compact disc.
2. The compact disc processing system of claim 1 wherein the re-transfer printer  
uses a thermal transfer process to print the image from the transfer sheet to the compact  
disc.
3. The compact disc processing system of claim 1 wherein the re-transfer printer  
prints the image to the internal transfer sheet while the transporter moves the compact  
disc to the re-transfer printer.
4. The compact disc processing system of claim 1 wherein the re-transfer printer  
comprises:  
a controller to transfer each ink of a multicolor ink film onto an intermediate  
transfer sheet by a line thermal head to form a primary transfer image, and to retransfer  
the primary transfer image onto a CD, wherein the controller further executes control to  
first form a positioning mark in an unused area of the intermediate transfer sheet by  
transferring one particular ink of the multicolor ink film, and thereafter always forming  
primary transfer images of plural colors on the intermediate transfer sheet in a  
superimposed relation with the transferred positioning mark as a reference.

FIG. 10

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5. The compact disc processing system of claim 4 wherein the controller further executes control to transport the intermediate transfer sheet backward after forming the positioning mark;  
transports the intermediate transfer sheet forward again for proper alignment of the positioning mark; and  
forms a primary transfer image using multiple colors with the positioning mark as a reference, thereby obtaining a full-color primary transfer image.
6. The compact disc processing system of claim 1 wherein the printer comprises:  
tension rollers positioned so as to face a transporting path of the intermediate transfer sheet;  
tension roller supporting frames rotatably supporting the tension rollers and pressing the tension rollers toward the intermediate transfer sheet;  
tension roller position sensor to detect a position of the tension rollers; and  
a control unit to control the actions of at least an intermediate transfer sheet transporting motor for transporting the intermediate transfer sheet.
7. The compact disc processing system of claim 1 wherein the printer comprises:  
a line thermal head for transferring inks from a multi-color ink sheet to the intermediate transfer sheet; and  
a re-transfer mechanism including a heating roller, a heating roller actuator mechanism to actuate the heating roller towards and away from the intermediate transfer sheet.
8. The compact disc processing system of claim 7 wherein the heating roller actuator mechanism can be selectively set at least to one of a weak contact state in

which the heating roller contacts with the intermediate transfer sheet with a small contact pressure and a strong contact state in which the heating roller contacts with the intermediate transfer sheet with a large contact pressure.

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9. The compact disc processing system of claim 7 wherein the printer further comprises a re-transfer mark detector to detect an alignment mark formed on the intermediate transfer sheet.

10. The compact disc processing system of claim 9 wherein the printer further comprises a controller to control the heating roller actuator mechanism, such that the heating roller actuator mechanism can be selectively set at least to one of a weak contact state in which the heating roller contacts with the intermediate transfer sheet with a small contact pressure and a strong contact state in which the heating roller contacts with the intermediate transfer sheet with a large contact pressure.

11. The compact disc processing system of claim 10 wherein the controller controls the timing of operation of the heating roller actuator mechanism in such a manner that the heating roller is set to the weak contact state at a moment prior to the detection of the alignment mark by the re-transfer mark detector and is set to the strong contact state at a timing determined by using as the time reference the moment at which the re-transfer mark is detected.

12. A content on demand processing system comprising:  
a processor;  
a data recorder to record content to a compact disc, wherein the content is provided by the processor ;

a transporter to transport the compact disc; and  
a re-transfer printer to print an image to an internal intermediate transfer sheet and transfer the image from the transfer sheet to the compact disc, wherein image data is provided by the processor.

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13. The content on demand processing system of claim 12 wherein the re-transfer printer uses a thermal transfer process to print the image from the transfer sheet to the compact disc.

14. The content on demand processing system of claim 12 wherein the re-transfer printer prints the image to the internal transfer sheet while the transporter moves the compact disc from to the re-transfer printer.

15. The content on demand processing system of claim 12 wherein the re-transfer printer comprises:

a controller to transfer each ink of a multicolor ink film onto an intermediate transfer sheet by a line thermal head to form a primary transfer image, and to retransfer the primary transfer image onto a CD, wherein the controller further executes control to first form a positioning mark in an unused area of the intermediate transfer sheet by transferring one particular ink of the multicolor ink film, and thereafter always forming primary transfer images of plural colors on the intermediate transfer sheet in a superimposed relation with the transferred positioning mark as a reference.

16. The content on demand processing system of claim 15 wherein the controller further executes control to transport the intermediate transfer sheet backward after forming the positioning mark;

transports the intermediate transfer sheet forward again for proper alignment of the positioning mark; and

forms a primary transfer image using multiple colors with the positioning mark as a reference, thereby obtaining a full-color primary transfer image.

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17. The content on demand processing system of claim 12 wherein the printer comprises:

tension rollers positioned so as to face a transporting path of the intermediate transfer sheet;

tension roller supporting frames rotatably supporting the tension rollers and pressing the tension rollers toward the intermediate transfer sheet;

tension roller position sensor to detect a position of the tension rollers; and

a control unit to control the actions of at least an intermediate transfer sheet transporting motor for transporting the intermediate transfer sheet.

18. The content on demand processing system of claim 12 wherein the printer comprises:

a line thermal head for transferring inks from a multi-color ink sheet to the intermediate transfer sheet; and

a re-transfer mechanism including a heating roller, a heating roller actuator mechanism to actuate the heating roller towards and away from the intermediate transfer sheet.

19. The content on demand processing system of claim 18 wherein the heating roller actuator mechanism can be selectively set at least to one of a weak contact state in which the heating roller contacts with the intermediate transfer sheet with a small

contact pressure and a strong contact state in which the heating roller contacts with the intermediate transfer sheet with a large contact pressure.

20. The content on demand processing system of claim 18 wherein the printer further comprises a re-transfer mark detector to detect an alignment mark formed on the intermediate transfer sheet.

21. The content on demand processing system of claim 20 wherein the printer further comprises a controller to control the heating roller actuator mechanism, such that the heating roller actuator mechanism can be selectively set at least to one of a weak contact state in which the heating roller contacts with the intermediate transfer sheet with a small contact pressure and a strong contact state in which the heating roller contacts with the intermediate transfer sheet with a large contact pressure.

22. The compact disc processing system of claim 21 wherein the controller controls the timing of operation of the heating roller actuator mechanism in such a manner that the heating roller is set to the weak contact state at a moment prior to the detection of the alignment mark by the re-transfer mark detector and is set to the strong contact state at a timing determined by using as the time reference the moment at which the re-transfer mark is detected.

23. A method of operating a compact disc (CD) transporter comprising:  
inserting the CD into a printer;  
printing a positioning mark on an intermediate transfer sheet, wherein the intermediate transfer sheet serves as a position reference;

forming a primary transfer image of plural colors on the intermediate transfer sheet in a superimposed relation with the transferred positioning mark as a reference; and

retransferring the primary transfer image onto the inserted CD.

24. The method of claim 23 further comprising:

transporting the intermediate transfer sheet backward after forming the positioning mark, and transporting the intermediate transfer sheet forward in alignment with the positioning mark; and

forming a primary transfer image in multiple colors using colors formed on a multicolor ink film with the positioning mark as a reference.

25. The method of claim 24 further comprising idly transporting the intermediate transfer sheet over a predetermined distance with the positioning mark as a reference, after proper alignment of the positioning mark.

26. A method of processing a compact disc (CD) comprising:

loading content data that is to be recorded to the CD;

loading image data to produce an image on the CD;

transporting the CD to a recorder;

recording the content data on the CD;

transporting the CD to a printer; and

prior to completing the transport of the CD to the printer, printing the image to an intermediate transfer sheet of the printer.

27. The method of claim 26 wherein printing the image to the intermediate transfer sheet of the printer comprises:

printing an index mark on the intermediate transfer sheet; and  
using the index mark to align multi-color print operations to form the image.

28. The method of claim 26 further comprises transferring the image from the intermediate transfer sheet to the CD.

29. The method of claim 28 further comprises loading second image data to produce a second image on a second CD, while transferring the image from the intermediate transfer sheet to the CD.

30. A method of processing a compact disc (CD) comprising:  
loading content data that is to be recorded to multiple CD's;  
loading multiple image data to produce images on the CD's;  
recording the content data on the CD's; and  
sequentially printing the images to an intermediate transfer sheet of the printer.

31. The method of claim 30 wherein printing the images to the intermediate transfer sheet of the printer comprises:

printing index marks on the intermediate transfer sheet; and  
using the index marks to align multi-color print operations to form the images.

32. The method of claim 30 further comprises transferring the images from the intermediate transfer sheet to the CD's.